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A STUDY TO DETERMINE THE IMPACT OF  
THE PRIMUS CLINIC ON PATIENT WORKLOAD  
IN THE GENERAL OUTPATIENT CLINIC, THE EMERGENCY ROOM,  
THE OB GYN CLINIC, THE PEDIATRIC CLINIC, AND THE FAMILY  
PRACTICE CLINIC AT MARTIN ARMY COMMUNITY HOSPITAL

"REPRODUCED AT GOVERNMENT EXPENSE"

A Graduate Management Project

Submitted to the Faculty of

Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Health Administration

by

Captain Michael L. Peyton, MS

7 July 1989

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This study evaluated the impact of the PRIMUS Clinic on workload within five primary care clinics at MACH. The study was based on workload data collected in the clinics being evaluated before and after the opening of the PRIMUS Clinic in Columbus Georgia. The data was statistically evaluated using tests to determine the significance and magnitude of the differences in workload trends after the opening of the PRIMUS Clinic.			
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HSXB-AR (600)

14 September 1989

MEMORANDUM THRU Colonel H. Dale Brown, Jr., ~~Deputy Commander for  
Administration/Preceptor, Martin Army Community  
Hospital, Fort Benning, Georgia 31905-6100~~

FOR Chairman, Residency Committee, U.S. Army-Baylor University  
Graduate Program in Health Care Administration, Academy of  
Health Sciences, ATTN: HSHA-IHC, Fort Sam Houston, Texas  
78234-6100

SUBJECT: Graduate Management Project Corrections

1. In accordance with the instructions contained in your letter dated 7 August 1989, a revised copy of my Graduate Management Project (GMP) is submitted.
2. Major changes included reducing all graphs and properly orienting them. Additionally, the errors noted on pages 19, 29, 46, and 49 were all corrected.

Encl  
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MICHAEL L. PEYTON  
CPT, MS

Administrative Resident

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## CHAPTER I

## INTRODUCTION

## Conditions Which Prompted the Study

The opening of the PRIMUS (Primary Care for the Uniformed Services) Clinic in Columbus, Georgia, provided increased access to primary care for the beneficiary population in the local Fort Benning catchment area. The Commander, Martin Army Community Hospital (MACH) is concerned that with the increased access to primary care generated by the PRIMUS Clinic, MACH could experience decreases in workload in the hospital primary care clinics. Additionally, the leadership at MACH is now faced with the task of ensuring that the hospital continues to provide quality care while realizing that possible decreases in workload will have an impact on funding and staffing authorizations.

In an information paper published by Smith (Medical Department Activity Comptroller) before the PRIMUS Clinic opened, it was predicted that the PRIMUS Clinic would reduce workload in the Outpatient Clinic, the Emergency Room, and the Pediatric Clinic during the period 30 April 1988 (opening date of PRIMUS) to 30 September 1988, thereby decreasing the average number of visits for these clinics in Fiscal Year 1988. After a data collection process and analysis were completed, a decrease in the average number of

clinic visits in all clinics under study was observed. The Smith paper provided an excellent building block to further investigate the impact of PRIMUS on the MACH workload.

Lastly, the leadership at MACH is committed to integrating the PRIMUS Clinic into the total MACH healthcare delivery system. By determining where, if any, shifts in workload are occurring, the Commander, MACH will be better able to manage limited resources, in the future. There are a number of differences of opinion on the success of the PRIMUS Clinics. Some officials view PRIMUS as the panacea to reduce overcrowded waiting rooms in military hospitals while others perceive it as a liability to the Department of Defense. Because of the level of disagreement surrounding the PRIMUS concept, there is a need to provide additional data on the effectiveness and impact of PRIMUS from the MACH perspective.

Although beyond the scope of this paper, dramatic decreases in workload will inevitably result in the development of strategies to regain workload lost to PRIMUS. By identifying the patient categories where shifts are occurring, the leadership at MACH will be better able to focus their strategic efforts to regain lost workload.

#### Statement of the Problem

The problem statement for this study is to determine the impact of the recently opened PRIMUS Clinic in Columbus,

Georgia, on the General Outpatient Clinic, Emergency Room, and the Obstetrics-Gynecology, Pediatric, and Family Practice Clinics at Martin Army Community Hospital.

#### Objectives

The objectives for this study were to:

1. Conduct a literature review assessing the purpose of PRIMUS Clinics, how they came to exist, and the impact of increased emphasis on outpatient care;
2. Determine whether opening the PRIMUS Clinic had a significant impact in decreasing workload in the specified clinics;
3. Collect utilization data from the specified clinics for six months prior to the opening of the PRIMUS Clinic to be used as a baseline for determining if there was a significant decrease in clinic visits;
4. Determine the number of provider manhours available in each clinic being studied pre- and post-PRIMUS;
5. Determine if there was a significant decrease in clinic visits among active duty, active duty dependents, retirees, and dependents of retirees in the appropriate clinics; and
6. Determine if significant decreases in clinic visits warrant reassessing present staffing levels in the clinics under study.

#### Criterion

The following criterion was used for this study:

The t tests were evaluated at the .05 alpha level to determine the significance of changes in clinic visits.

### Assumptions

In pursuing this study, the following assumptions were made:

1. The utilization data, in terms of visits to the clinics under study within MACH, have been accurately gathered by the Patient Administration Division (PAD);
2. The number of provider manhours available on a monthly basis in each clinic under study has been accurately gathered by the Resource Management Division (RMD);
3. The quality of care delivered in each clinic being studied at MACH is comparable to the quality of care delivered at the PRIMUS clinic;
4. The services normally available within the clinics being studied were not curtailed during the period under study;
5. The impacts of PRIMUS were primarily felt in the Primary Care Outpatient Clinics within MACH; and
6. The PRIMUS clinic will remain open regardless of the results of this study.

### Limitations

The following factors imposed limits on this study:

1. The impact of the PRIMUS Clinic in Columbus was only related to MACH and not to other military hospitals associated with PRIMUS Clinics;
2. In assessing the utilization data, the acuity of the patients presenting for treatment was not evaluated; and
3. Assessment of staffing levels was based on current authorizations at the completion of this study.

## Review of the Literature

Events Leading to the Development of PRIMUS

The Department of Defense Authorization Act of 1984 directed that DoD conduct demonstration projects and studies to improve the access, quality, efficiency and cost effectiveness of the military health care system (Hudak, 2). In September 1983, the Assistant Secretary of Defense (Health Affairs) directed the services to undertake a three year test program to expand their primary care capabilities. The directive required the services to establish primary care centers in the civilian communities where it was cost effective to contract with private health care providers (2).

Hudak indicates that DA's approach in responding to the directive from Congress was to evaluate the private health care system and modify its structure to fit the unique characteristics of the military (2). Hudak points out that for-profit hospital chains are investing in primary care centers while independent hospitals are establishing centers to retain and expand their catchment areas. Hudak suggests that these organizations have become well aware of the financial feasibility of these centers. According to Hudak, studies indicate that nine out of ten patients who visited conveniently located primary care centers become repeat patients (2). If this is, in fact, true, it is safe to assume that PRIMUS will have a similar effect in attracting patients who had routinely sought care at MAC4.

The Satellite Primary Care Center concept was approved by The Surgeon General (TSG) in January 1984 (Evans, 1987). Hudak reports that the original concept was to establish a military health clinic staffed with active duty family practice physicians and ancillary personnel and the facility would be housed in a building provided by the General Services Administration. However, it was determined in August 1984 that the Army Medical Corps did not have the resources available to staff the clinics (3).

As an alternative, it was proposed that the Army contract with a private sector firm to establish and operate the satellite clinics. This alternative was designated as PRIMUS (Primary Care for the Uniformed Services). Under the PRIMUS concept, the Army presently reimburses the contractor on a per clinic visit basis (Evans). The PRIMUS Clinic in Columbus, Georgia, was budgeted for 24,000 visits in fiscal year 1988 at \$50.25 per visit (Commander). MACH receives no credit for PRIMUS Clinic workload and has very little control over the clinic operations.

The Defense Department views PRIMUS as part of the solution to the military's perceived dual problem of high medical costs and poor service. When the Army opened its first PRIMUS Clinic in northern Virginia in 1985, military families enthusiastically sought treatment at the facility, seeking relief from crowded waiting rooms and long delays at nearby Dewitt Army Community Hospital (DACH), Fort Belvoir, Virginia. The clinic logged 40,000 visits in the first year of operation (Ready, 35). Because of the success of the

first PRIMUS clinic in northern Virginia, there are currently ten Army clinics in operation throughout the Continental United States (Evans, 1987).

#### Objectives and Success

The objectives of the PRIMUS program are to increase patient access and convenience, to improve patient satisfaction, and to be cost competitive with the Civilian Health and Medical Program for the Uniformed Services (CHAMPUS) (Evans, 1987). The Hudak Study indicated that PRIMUS had successfully met these objectives (9). In further support of the success of the PRIMUS Clinics currently in operation, Asch reports that the rate of satisfaction with the care offered by the PRIMUS clinics is in excess of 99 percent.

The PRIMUS Clinics are primary care and family practice oriented, with pharmacy, laboratory, and radiology services available to treat injuries and ailments such as colds, cuts, sprains, and minor fractures. PRIMUS Clinics are much like the civilian walk-in clinics or the office of a private practitioner (Asch).

As previously indicated, when the northern Virginia PRIMUS Clinic first opened, 40,000 visits were logged in its first year. This fact attests to the clinic's popularity among the beneficiary population. Although popular, one must still ask whether the clinic is successful in terms of meeting the previously outlined objectives. Ready indicates that congressional investigations have

revealed that PRIMUS Clinics may be increasing medical costs by encouraging current users to seek more services and by attracting beneficiaries who had previously sought care elsewhere (35). White reports that DACH experienced no decline in workload during the first year of the clinic's operation. She further asserts that the PRIMUS goal of recapturing beneficiaries previously using CHAMPUS as an alternate health care system was being met. White also speculates that this phenomenon could be due to the fact that the PRIMUS Clinic was serving a previously underserved population (36).

Inconsistent with White's assertion that the PRIMUS Clinic was recapturing CHAMPUS workload was a study by the Congressional Budget Office which found that only 7% of all users of PRIMUS Clinics had ever used CHAMPUS (Ready, 35). This finding certainly suggested that the clinics met a hidden demand for medical services. However, it is assumed that this finding does not take into account those individuals who had previously sought care at their own expense from private sources who began to seek treatment at the PRIMUS Clinic after its opening (ghost population). The "ghost population" concept itself still supports that there is an unmet demand for medical services.

Mouritsen asserts that the demand for health care, particularly outpatient primary care, continues to increase, while resources to meet this demand continue to be reduced. Mouritsen indicates that PRIMUS is an enhancement to, and an extension of the direct care system. As outlined by

Mouritsen, the objectives of PRIMUS are to enhance the capabilities of the direct care system by making the care more accessible and convenient and by using contractors to provide the care rather than taking resources away from the existing direct care system (Mouritsen, DASG 87). Recently the PRIMUS Clinics have come under fire by congressional critics of the program. Some members of Congress have gone so far as to suggest that PRIMUS Clinics are a luxury the military cannot afford. Army officials counter this attack by indicating that PRIMUS Clinics were established to increase access to medical care, and not to save money (Henry, 2).

Henry reports that despite additional money spent to provide primary care through the contract clinics, however, the cost of CHAMPUS, has continued to grow at a rate even higher than that of medical inflation (2). This finding, along with Ready's report, clearly support that the PRIMUS Clinics have not been successful in reducing CHAMPUS costs.

Mouritsen indicates that the fact that contract clinics are adding to the cost of providing care rather than reducing CHAMPUS costs should not be a surprise. He further indicates that the contract clinics are costing more than was previously spent, but it was known that this would happen up front. Mouritsen asserts that since increasing access was the original purpose of PRIMUS, congress is

changing the rules of the game by evaluating contract clinics according to their effect on CHAMPUS costs (Henry, 2).

When addressing the impact of PRIMUS on the direct care system, the results of data gathering at this point do not indicate that PRIMUS is reducing the burden on the direct care system. In addressing the fact that workload did not decrease at DACH, Mouritsen suggests that the workload just rearranged itself. Mouritsen reports that pediatric workload and the non-emergency room visits decreased at DACH. However he goes on to indicate that the vacuum was quickly filled by other people who found that they could get into the direct care system and receive care that they had been previously unable to attain (Henry, 14).

In spite of the PRIMUS Clinic's ability to increase access, future funding for additional clinics is uncertain. The Army has postponed building new clinics as a result of cuts in operation and maintenance accounts, which finance the contract clinics. Additionally, Congress has directed the Secretary of Defense to report to the House and Senate Armed Services Committee on contract clinic programs and CHAMPUS demonstration projects. The report is to include a comparison of the cost of providing health care under each system with the cost of CHAMPUS (Henry, 14).

As indicated previously, there is still significant controversy with regard to the success and feasibility of the PRIMUS Clinics. It is this writer's opinion that PRIMUS is a positive step in the right direction for providing

increased access to primary care. While a great deal of thought and planning was put forth in developing the PRIMUS concept, the literature certainly supports that the funding associated with PRIMUS is of major concern.

Impact of Increased Emphasis on Ambulatory Care

With the implementation of stringent cost containment measures within the health care industry, health care services that have been routinely delivered in an inpatient setting are now being delivered in an ambulatory care setting. Additionally, with increased emphasis on ambulatory care, there has been a resultant increase in the number of primary care centers throughout the country. Starfield reports that although the term "primary care" has a long history, it was virtually unknown in the United States before the mid 1960s. Even today, it is not widely accepted among the profession of medicine, which prefers the terms family medicine, general internal medicine, and general pediatrics to reflect the concepts that are embodied in the broadened term "primary care" (179). However, because of the increased attention that the modality of primary care has come to receive, it is supported that the term will receive greater acceptance within the medical profession.

Goldsmith suggests that once a seemingly unattractive delivery alternative, ambulatory care is now the object of widespread attention and admiration. He further cites an illustration of how dramatic the shift to ambulatory care

has been. Thirteen years ago when a major foundation announced a grant fund of \$30 million for hospitals to use to set up community ambulatory programs, applicants had to be actively solicited to participate in the program. Goldsmith further asserts that today such a program would cause a nationwide stampede (14).

Lutz reports that hospitals are revising staffing ratios, revenue projections, and physical plants in response to the growing number of patients treated at outpatient departments and freestanding ambulatory health care centers. Lutz suggests that for years outpatient care has been the stepchild to inpatient care. He points out that priorities are changing since outpatient programs bring in a larger portion of hospital revenue (37). Although the relationship between MACH and the PRIMUS Clinic is not one where revenue is generated and MACH benefits, PRIMUS has successfully provided expedient access to care for beneficiaries that might have otherwise been unavailable.

Slubowski asserts that the California gold rush of 1849 parallels the current dramatic surge in the development of ambulatory care facilities by hospitals, physicians and other entrepreneurs. Health care organizations, for profit companies, physicians, and others are placing huge stakes on the development of ambulatory care facilities with the prospect of huge returns on investments (233). In the case of PRIMUS, it is safe to conclude that the return on investment to DoD comes in the form of increased access and patient satisfaction to the beneficiary population.

The rationale for the development of ambulatory care service varies by sponsor but includes a response to health care costs, changing patterns of medical care, physician surplus, and competitive developments in health care delivery (Slubowski, 234). The fact that one of the objectives of PRIMUS was to be cost competitive with CHAMPUS supports Slubowski's assertion that ambulatory care services are developed in response to health care costs. In addressing the issue of changing patterns of medical care, Slubowski suggests that changing consumer attitudes toward health care, including a preference for expedient, accessible ambulatory services over time consuming inpatient alternatives, fuel the demand for ambulatory care (234).

Rosenfield suggests that the next battlefield within the healthcare industry will be ambulatory care--a battle driven by changes in demographics, advanced technology, and economics. He suggests that the principal demographic factor is the enormous increase in the number of physicians relative to the need for them. Rosenfield suggests that in retaliation, physicians will take on measures such as discounting fees, selling prescription drugs, and setting up ambulatory facilities in competition with hospitals. Payers are more aware that ambulatory care is far less expensive than inpatient care and, as a result, will continue to create incentives for hospitals and physicians to treat patients in ambulatory settings. (Rosenfield, 78).

Berlinger's view of proprietary ambulatory care suggests that critical paradoxes may result. In making

startling conclusions, he examines the growth of Ambulatory Surgery Centers, Urgent Care Centers, Ambulatory Diagnostic Centers, and Health Maintenance Organizations from a proprietary perspective. Berlinger suggests that proprietary ambulatory care, like its hospital counterpart, profits by selective marketing and pricing; it has no interest in poor people, but only in those who can pay best for their services and for the convenience of a fast appointment. One question of particular interest posed by Berlinger asked what will happen to communities' investment in acute care facilities in the rush to the ambulatory bandwagon? He points out, however, that this question cannot be answered on an empirical basis at present because the operation of proprietary ambulatory care is still so new (592).

Cherkov suggests that greater attention to hospital design will come about as a result of increased emphasis on ambulatory care. She indicates that most construction executives see hospitals moving to accommodate a consumer-oriented approach to delivery of primary and not specialty service. More hospitals will be developing in-house centers of excellence whereby the delivery of such primary services as obstetrics and pediatrics will be honed to a fine edge. Cherkov further suggests that construction of medical facilities outside of the hospital but within campus like settings is growing in popularity. She also

reports that malls receive continuing emphasis in health care design with a move toward more ambulatory services being provided (58).

#### Impact of Free Standing Health Care Centers on Hospitals

Hellstern suggests that of all the changes that have occurred in recent years, none has had greater impact nor generated any greater amount of controversy, than that of the development of freestanding emergency centers (FECs), "convenience clinics or ambulatory care centers (ACC)". Hellstern further suggests that the development of FECs is an attempt by hospitals, private physicians, and health services corporations to match their resources and capabilities to patients' needs and demands for patient care (103). It is noted that the goals of PRIMUS are very similar in nature with regard to its beneficiary population.

In a study conducted by Curtis, the impact of an HMO on a university based family practice program was investigated. In the study it was pointed out that visits to the family practice center made by newly enrolled members of the HMO rose from just under 10 % of all visits during its first year of operation to 44 % in the subsequent six month period after establishment of the HMO (92). Although the problems outlined in this study are mostly concerned with measures that were taken to deal with the increased workload, it is suggested that the population that readily sought

enrollment in the HMO, had an impact on their previous providers of primary health care, in the form of decreased workload.

In assessing the impact of freestanding emergency centers (FEC) on hospital emergency department use, Ferber indicates that hospital emergency departments (ED) have traditionally been a major site for the delivery of emergency and ambulatory services. Ferber reports that in the mid-1970s, the FECs began to appear throughout the United States. Additionally, as FECs proliferated, the growth in the number of hospital emergency department visits slowed (429).

Ferber tested the hypothesis that freestanding emergency centers affect the number of visits to hospital emergency departments (ED) in their service area. It was found that emergency department visits to hospitals in the service areas of FECs continued to grow during the period under study, 1978-1980. Ferber points out, however, that emergency department visits to a comparison group of hospitals without FECs in their service areas declined during the same period. Additionally, Ferber reports that although the differences in emergency department visits between the groups are not statistically significant, the direction of the difference and trend suggests that the presence of FECs has not led to a decline in emergency department visits to hospitals in their service areas (432). It was concluded that it cannot be determined based on the study whether FECs have slowed the growth of ED visits.

Hellstern reports that emergency department utilization between 1981 and 1984, which is the most recent year with complete data available, experienced a 7.1% decline. He further indicates that in contrast, ACC visits rose tenfold over the same period from approximately 2.5 million in 1981 to over 25 million in 1984 (110). It is noted that the Ferber study found no statistically significant decreases in ED visits in 1982 and 1983. However, Hellstern asserts that although difficult to quantify the portion of decline related to the ACC presence, there is little doubt that ACCs are a significant factor (110).

In a similar study on utilization patterns, Sjonell reports on the effects of establishing a primary health care center on the utilization of primary health care and other outpatient care in a Swedish urban area. In this study, Sjonell reports that several Swedish and other foreign studies support the theory that an expansion of primary health care leads to a reduction of the workload within hospitals, to include both inpatient and outpatient (149).

Sjonell tested the hypothesis that the expansion of primary care in the catchment area under study by developing a primary health care facility is related to the reduction of the population's utilization of other outpatient care (149). The results of the study demonstrated that the development of increased access to primary care reduced the

number of visits to hospitals and the non-public employed physicians and also reduced the use of emergency services (153).

#### Summary

The review of the literature clearly suggest that the PRIMUS concept has been well received by the beneficiary populations in the areas where they have been established. Additionally, it was brought out loud and clear that the private sector has made a strong commitment to providing more health care in an ambulatory setting which has had an impact on the overall delivery of health care within the United States. The cost of providing care under the PRIMUS concept has placed the future development of PRIMUS Clinics in jeopardy. The overriding concern with cost has been that PRIMUS has not met the objective of being cost competitive with CHAMPUS. However, the literature points out that the objectives of providing increased access and convenience to beneficiaries and improved patient satisfaction have been met. In essence, it might be suggested that from a patient perspective all is well but from the perspective of those whose foremost concern is cost containment, PRIMUS is not an overwhelming success.

In assessing the impact of increased emphasis on outpatient care from the perspective of the private sector, the literature suggest that health care delivery in an ambulatory care setting is becoming increasingly popular. The continued development of freestanding health care

facilities certainly suggests that the providers of health care are becoming more consumer oriented in their efforts to make health care more convenient and easier to access. Several studies suggest that increased access to primary care within a given area, will result in decreased workload (both inpatient and outpatient) within the hospitals that serve these areas. The literature clearly signals that the trend toward ambulatory care is here to stay and that entrepreneurs are continually investing in primary care modalities as a means of gaining increased market share.

#### Methodology

The methodology associated with this study was divided into two phases. In the first phase, data was collected to determine the total number of visits to the specified clinics on a monthly basis six months prior to the opening of the PRIMUS Clinic. Additionally, the number of active duty, dependents of active duty, retirees, and dependents of retirees presenting for treatment was determined. To assess the monthly number of provider manhours available in each clinic under study, the Uniform Chart of Accounts Personnel Expense Reporting System (UCAPERS) data were evaluated. With the opening of the PRIMUS Clinic on 30 April 1988, the same data was collected post-PRIMUS from 1 July 1988 through 31 December 1988.

In the second phase of the study, the data collected in the first phase was evaluated to determine if a significant decrease in clinic visits occurred. The mean number of

monthly clinic visits for all clinics under study was determined pre- and post-PRIMUS for the periods indicated above. A t test for independent means was conducted and a t value computed. The computed value was compared to the tabled value at the .05 alpha level. If the computed value was larger, it was then concluded that the data from the period before the opening of PRIMUS were significantly different than that from the period after the opening of the PRIMUS Clinic. All t tests were conducted using the computer software package Microstat. The magnitude of the differences in clinic visits between pre- and post-PRIMUS served as the basis for determining whether reassessment of current staffing levels was warranted. In analyzing the data further, the workload data for the post-PRIMUS period was compared to the workload data which generated the current staffing authorizations in the clinics under study. There was no statistical analysis of this data. However, the comparisons were discussed and the actual numbers of the workload data which generated current staffing authorizations are displayed in the paper.

#### Overall Research Question

The overall research question for this study is, did the opening of the PRIMUS Clinic in Columbus, Georgia result in a significant decrease in clinic visits within the previously specified clinics of Martin Army Community Hospital?

Hypotheses

The hypotheses in this study are as follow:

1.  $H_0$  = There was not a significant decrease in total clinic visits among the clinics under study 6 months post-PRIMUS.

$H_a$  = There was a significant decrease in total clinic visits among the clinics under study six months post-PRIMUS.

2.  $H_0$  = There was not a significant decrease in monthly clinic visits in each of the clinics under study six months post-PRIMUS (five testable hypotheses).

$H_a$  = There was a significant decrease in monthly clinic visits in each of the clinics under study six months post-PRIMUS.

3.  $H_0$  = There was not a significant decrease in clinic visits within each patient category in the Emergency Room, the Outpatient, OB-GYN, and the Family Practice Clinics six months post-PRIMUS (sixteen testable hypotheses).

$H_a$  = There was a significant decrease in clinic visits within each patient category in the Emergency Room, the Outpatient, OB-GYN, and the Family Practice Clinics six months post-PRIMUS.

4.  $H_0$  = There was not a significant decrease in monthly clinic visits by dependents of retirees and dependents of active duty in the Pediatric Clinic. (two testable hypotheses).

H<sub>m</sub> = There was a significant decrease in monthly clinic visits by dependents of retirees and dependents of active duty in the Pediatric Clinic.

## CHAPTER II

## DISCUSSION

General Background

Martin Army Community Hospital is a general acute care hospital supporting Fort Benning and a health service area consisting of 80 counties located in east-central Alabama, north-central Florida, and southwestern Georgia. Presently MACH supports a military strength of 24,436, a retired strength of 11,806, a total of 55,387 family members and 8,454 civilians for a grand total population supported of 100,083. Built on a 500 bed chassis, MACH has 315 beds set up and in place, and is staffed to operate 196 at the present time. During Fiscal Year 1988, MACH admitted 12,382 patients to the hospital, assisted with 1,302 births and accumulated 66,832 occupied bed days. On the outpatient side, there were 709,891 clinic visits during the year, for an average of 1945 visits daily. Additionally, the clinics under study comprise 31% of the total clinic visits within MACH. The hospital's budget for fiscal year 1988, excluding military pay, was approximately \$30 million in the Operation and Maintenance Army (OMA) category, from which such things as supplies, equipment, supplemental care

and civilian salaries are funded. Notwithstanding the retiree population, the population supported is generally young and healthy with an average age of 20-40 years old.

The Family Practice Clinic under study is a designated site for Family Practice Residency Training. The residency training program has a total of 27 residents broken down into three year group classes of nine physicians each. The first year residents are allowed to work with a panel of 25 families. The second year of training emphasizes outpatient care and allows residents to provide full outpatient care to a panel of 75 families. The third year residents operate in essence as full staff members, providing inpatient and outpatient care to a panel of 150 families.

The Outpatient Clinic (OPC) at MACH is designed to provide primary care to those beneficiaries not assigned to Family Practice or a Troop Medical Clinic. Since most active duty service members do, in fact, fall into one or the other of these categories, most of the patients seen at the OPC are retirees and their dependents. The professional staff of the OPC consists of five full-time civilian physicians and one rotating military physician who treats sick call patients in the morning. Patients at the OPC are seen by appointment and are scheduled every 15 minutes beginning at 0730 and ending at 1600, Monday through Friday.

The professional staff of the Emergency Room consists of two emergency medicine trained physicians, and six general medical officers. In addition, the house staff is

supplemented with civilian contract physicians. The Emergency Room has historically provided primary care for beneficiaries after normal duty hours. Non-emergency patients should expect to be treated within three hours after signing into the Emergency Room because of the high numbers of individuals often seeking routine primary care. The ER most often experiences its greatest workload after normal duty hours and on weekends.

The OB-GYN Clinic's professional staff consists of four physicians and two rotating family practice residents. The OB-GYN Clinic, with it's limited staff, has a high patient load. The heavy workload within the OB-GYN Clinic has, to an extent, contributed to an inordinate number of complaints being received. Specifically, complaints have been received regarding excessive waiting times to be seen for scheduled appointments as well as against the providers.

The professional staff of the Pediatric Clinic consists of six physicians. The Pediatric clinic averages approximately 135 daily clinic visits. As one would expect, the patients seen in the Pediatric Clinic are exclusively dependents of active duty service members and retirees. Patients are seen within the Pediatric Clinic by appointment.

During the period of this study, staffing of ancillary personnel within the clinics under study did not greatly change. However, because of turnover, leaves, TDY,

and the availability of physicians in general to provide primary care, data on monthly manhours have been included in this study.

#### Data Collection

The number of clinic visits by patient category are reported by each clinic on a weekly basis to the hospital statistician. The statistician subsequently compiles the data provided by the clinics into total monthly clinic visits, as well as totals by patient category. After explaining to the resource managers within MACH what information was needed in terms of available provider manhours on a monthly basis, it was determined that the monthly Manpower Expense Distribution Report captures this data. As such, the expense distribution report was used to determine the number of provider manhours available on a monthly basis. Therefore, the data collection process primarily consisted of extracting information from monthly reports generated by the Patient Administration Division and the Resource Management Division.

As previously indicated, the literature suggests that the PRIMUS Clinics in northern Virginia have not resulted in decreased CHAMPUS outlays. Additionally, the results of a survey conducted by this writer in November 1988 indicated that the majority of the users of the PRIMUS Clinic in Columbus had not previously used CHAMPUS for gaining access to routine primary care. For the aforementioned reasons, CHAMPUS data was not included in this study. It is also

pointed out that CHAMPUS beneficiaries have up to two years to file a claim after receiving treatment. Therefore, any data collected with regard to utilization of CHAMPUS during the study period would most likely not be accurate and reliable.

The previously specified hypotheses were tested while assuming: (1) that the samples were normally distributed in the population; (2) there is homogeneity of variance; and (3) that the samples are independent.

#### Evaluation of Hypothesis Number One

The first step in the data analysis was to test each of the previously stated hypotheses. The descriptive statistics and result of the t test are indicated in Table 1 with regard to hypothesis number one.

Table 1

#### Descriptive Statistics and Result of t test For Total Clinic Visits

	Pre Mean	Post Mean	Percent Change	SD Pre	SD Post	Result of t Test
Tot Visits	17338	14366	17 -	1259	636	$t(10) = 5.16$ $p < .005$

As a result of the computed t statistic, the null hypothesis was rejected and the alternate accepted. It is pointed out that the difference in the mean total visits between pre and post-PRIMUS was 2,972 for a 17% decrease in mean clinic visits after the opening of the PRIMUS Clinic which is statistically significant ( $p < .005$ ). It is noted that the standard deviation for the pre-PRIMUS period is almost doubled the standard deviation of the post-PRIMUS period. While the mean number of visits

on a monthly basis during the pre-PRIMUS period was obviously greater, the variations in the number of monthly visits decreased after PRIMUS. As depicted in Appendix H, the trend among Active Duty Dependents is very similar to the trend in total visits.

The next step in investigating the first hypothesis was to determine which patient categories experienced significant decreases in clinic visits post-PRIMUS. In doing so, a t test was conducted on the mean number of clinic visits conducted by each separate patient category pre- and post-PRIMUS. The totals for each patient category were determined by totaling the monthly number of clinic visits by patient category within each clinic under study. The results of the t test are as outlined in table 2.

Table 2

Descriptive Statistics and the Result of t Tests Conducted on Patient Categories

	Pre Mean	Post Mean	% Change	SD Pre	SD Post	Result of t test
Active Duty	2337	2010	14 -	114	162	$t(10) = 4.03$ $p < .005$
Active Dep	8927	7089	21 -	703	283	$t(10) = 5.94$ $p < .005$
Retired	2038	1663	18 -	177	73	$t(10) = 4.8$ $p < .005$
Retired Dep	3777	3317	12 -	353	282	$t(10) = 2.48$ $p < .05$

The results of the t tests indicate that Active Duty Dependents experienced the most statistically significant decrease ( $t=5.94$ ,  $p < .005$ ) in overall clinic visits within the clinics under study which equates to a 21% decrease in mean visits during the post-PRIMUS period. Additionally,

the results of the t tests reveal that Active Duty, Retirees, and Retired Dependents experienced statistically significant decreases in clinic visits as well, 14%, 18%, and 12% respectively. The t values are indicated in Table 2. As delineated in Table 2, the decreases among Active Duty, Active Duty Dependents, and Retirees were all significant at the .005 alpha level. It is pointed out that while Retired Dependents experienced the smallest decrease in terms of percentage that this patient category had the least statistically significant ( $p < .05$ ) decrease in post-PRIMUS visits as well.

It is also noted that Active Duty Dependents had the greatest standard deviation (703.2) during the pre-PRIMUS period, which suggests that during this period that the number of visits made by Active Duty Dependents varied greatly from one month to the next. It is further noted that the standard deviation decreased during the post-PRIMUS period among Active Duty Dependents which suggest that there was not as much variation with regard to clinic visits during these months. Furthermore, it is suggested the same is true with Retirees and Retired Dependents since there was a decrease in standard deviation during the post-PRIMUS period as well. Simply stated the visits made by Active Duty Dependents, Retirees, and Retired Dependents to the clinics under study were fewer but more consistent during the post-PRIMUS period. It is suggested, however, that the visits made by Active Duty personnel to the clinics under study were less consistent during the post-PRIMUS period

because of the increase in standard deviation. The trends among patient categories can be examined closer at Appendix I.

Based on the above analysis and interpretation, it is suggested that during the post-PRIMUS period that there was a significant decrease in clinic visits by all patient categories.

Evaluation of Hypothesis Number Two

The next step was to examine which clinics within MACH experienced significant decreases in total clinic visits (hypothesis #2). The results are delineated in Table 3.

Table 3

<u>Descriptive Statistics and t tests of Individual Clinics</u>						
	Pre Mean	Post Mean	Percent Change	Pre SD	Post SD	Result of t test
Outpat Clinic	2955	1981	33 -	283	181	$t(10)= 7.1$ $p < .005$
Fam Practice	5528	4266	23 -	356	281	$t(10)= 6.8$ $p < .005$
ER	4075	3551	13 -	288	144	$t(10)= 3.9$ $p < .005$
Pediatrics	3005	2562	15 -	288	144	$t(10)= 2.64$ $p < .05$
OB-Gyn	1526	1719	13 +	192	192	$t(10)= -1.8$ $p < .05$

The null hypotheses were rejected with regard to clinic visits in each clinic under study with the exception of the OB-Gyn Clinic. It is pointed out, that the OB-Gyn Clinic within MACH experienced a statistically significant increase in total clinic visits which equates to a 13% increase as indicated in Table 3. The Outpatient Clinic experienced the greatest decrease in terms of percentage (33%) and statistically ( $t=7.1$ ,  $p < .005$ ). The Family

Practice Clinic, the Emergency Room, and the Pediatrics Clinic, experienced decreases as well, 23%, 13%, and 15% respectively. It is pointed out that even though the Pediatric Clinic experienced a greater decrease (15%) in mean monthly visits post-PRIMUS than the Emergency Room (13%), the decrease in Pediatrics was only statistically significant at the .05 alpha level while the decrease in the ER was statistically significant at the .005 alpha level.

It is noted that the standard deviations for each of the clinics being investigated decreased during the post-PRIMUS period except for the OB-Gyn Clinic which remained constant. Here too in the Outpatient, Family Practice, and Pediatric Clinics and the Emergency Room, the visits were fewer but more consistent from month to month during the post-PRIMUS period.

It is suggested that as a result of the above analysis, each clinic under study experienced a significant decrease in total visits with the exception of the OB-Gyn Clinic during the post-PRIMUS period (see Appendix H). To further investigate the number of visits made within the clinics under study and to avoid making unwarranted conclusions, provider availability in terms of manhours was investigated. In order to do so the following hypothesis was tested:

$H_0$  = There was not a significant decrease in number of monthly total provider manhours available in each clinic under study post-PRIMUS.

$H_0$  = There was a significant decrease in the number of monthly total provider manhours available in each clinic under study post-PRIMUS.

The results of the hypothesis test with regard to provider manhours are outlined in Table 4.

Table 4

Results of t Test Conducted on Manhours in Each Clinic

	Pre Mean	Post Mean	Percent Change	Pre SD	Post SD	Result of t test
OB	431	366	15 -	95	45	$t(10) = 1.52$ $p > .05$
ER	1772	1844	4 +	160	120	$t(10) < 1$ , N/S
OPC	901	660	27 -	114	340	$t(10) = 1.64$ $p > .05$
FP	2220	1810	18 -	401	160	$t(10) = 2.32$ $p < .05$
Peds	793	515	35 -	79	269	$t(10) = 2.42$ $p < .05$

As depicted in Table 4, the Family Practice and Pediatric Clinics were the only clinics that experienced statistically significant decreases in provider manhours post-PRIMUS. Therefore, the null hypotheses were not rejected with regard to provider manhours available in the OB-GYN clinic, the Emergency Room and the Outpatient Clinic. It is noted that the Emergency Room experienced a 4 % increase in provider manhours available during the post-PRIMUS period although not statistically significant.

At this point it is important to highlight the fact that the OB-Gyn Clinic experienced a significant increase in workload post-PRIMUS while posting a loss of provider manhours post-PRIMUS, although not significant. Additionally, it is pointed out that the Emergency Room and the Outpatient Clinic experienced significant decreases in

workload post-PRIMUS, although there was not a statistically significant decrease in provider manhours available within these clinics. A correlation matrix was developed for each clinic under study (appendix B) in order to determine if there was a relationship between total clinic visits and provider manhours. It was found that the only clinic where there was a relationship between manhours and clinic visits was within the Outpatient Clinic ( $r = .57820$ ,  $p < .05$ ). The fact that there were no significant correlations between manhours and total clinic visits within the other clinics came as a total surprise.

It is also pointed out that the OPC experienced a great decrease in provider manhours post-PRIMUS in terms of percentage (27%), although the decrease was not statistically significant, while experiencing the greatest decrease in clinic visits post-PRIMUS both statistically and in terms of percentage (see Table 3). The fact that the OB-Gyn Clinic experienced a decrease in provider manhours post-PRIMUS and increased its workload post-PRIMUS further suggests that there is no relationship between provider manhours and clinic visits or that the clinic is doing more with less which is not indicative of the number of provider manhours available. In the case of the Emergency Room where the workload decreased and the manhours increased during the post-PRIMUS period, this finding could suggest excess capacity within the Emergency Room during the post-PRIMUS period. The Family Practice and Pediatric Clinics experienced statistically significant

decreases in clinic visits and manhours during the post-PRIMUS period. Because there was no apparent relationship between provider manhours and clinic visits as indicated in the correlation matrixes, it is suggested that the decreases in clinic visits during the post-PRIMUS period was due more to the presence of the PRIMUS Clinic than available manhours.

Test of Hypothesis Number Three

The next step was to examine whether there was a significant decrease in clinic visits within each patient category within each clinic under study. The Pediatric Clinic will be discussed last because active duty dependents and retired dependents are the only users of this clinic.

The results of the t tests conducted on the four patient categories of interest within the Emergency Room are delineated in Table 5.

Table 5

<u>Results of t Test Conducted on Patient Categories in ER</u>						
	Pre Mean	Post Mean	Percent Change	Pre SD	Post SD	Result of t test
Act Dut	1296	1312	1 +	104	157	$t(10) < 1$ N.S.
Act Dep	1832	1485	19 -	165	34	$t(10) = 5.06$ $p < .005$
Ret Dep	576	445	23 -	50	33	$t(10) = 5.4$ $p < .005$
Retiree	369	309	16 -	36	15	$t(10) = 3.8$ $p < .005$

There were significant decreases in ER Clinic visits in each of the patient categories, as indicated in table 5 with the exception of Active Duty. As a result, the null hypotheses were rejected for each patient category within

the ER, except for Active Duty. However, it is pointed out that the Emergency Room (ER) experienced an increase (1%) in Active Duty patient visits, although not statistically significant. Retired dependents had the most statistically significant decrease ( $t = 5.4$ ,  $p < .005$ ) in visits post-PRIMUS while proving to be a relatively low density patient category within the Emergency Room. It is pointed out that the standard deviation for each patient category decreased post-PRIMUS with the exception of Active Duty. It is particularly interesting that the standard deviation decreased dramatically among Active Duty Dependents post-PRIMUS. The decreased standard deviations suggest that even though the number of visits were less, the workload among patient categories was more consistent during the post-PRIMUS period except among Active Duty within the Emergency Room. The magnitude of the decreases in visits among Retired Dependents and Active Duty Dependents 19% and 23% (both statistically significant) are very similar. However it is suggested that the 19% reduction among Active Duty Dependents had the greatest overall impact on total clinic visits within the Emergency Room during the post-PRIMUS period because of the density of this patient category. As previously noted, the most significant decrease statistically and in terms of percentage was among Retired Dependents during the post-PRIMUS period. However, it is pointed out that Retired Dependents is a low density patient category as well as Retirees and together account for less than half of the

total visits within the Emergency Room. As delineated in Table 3, the Emergency Room experienced a 13% reduction in clinic visits post-PRIMUS which is most consistent with the decrease experienced by Retirees. The graphical representation of visits by patient category within the Emergency Room is at Appendix C.

There is no doubt that the majority of the beneficiaries seeking care in the Emergency Room during the period under study were not suffering from life threatening illnesses. The literature suggests that hospital Emergency Departments have traditionally been a major source of primary care within the United States. Furthermore, it is suggested that this has been the case within the Emergency Room at MACH. Based upon the results indicated in Table 5, it is suggested that the decreases in workload during the post-PRIMUS period was due largely to patients that would have normally sought care in the ER who opted for care at the PRIMUS Clinic instead.

The results of the t tests conducted on the patient categories of interest within the OB-Gyn Clinic are outlined in table 6.

Table 6

Results of t Tests Conducted on Patient Categories in OB-Gyn

	Pre Mean	Post Mean	Percent Change	Pre SD	Post SD	Result of t Test
Act Dut	212	303	43 +	40	31	$t(10) = -4.4$ $p < .005$
Ret Dep	198	182	8 -	78	48	$t(10) < 1$ N/S
Act Dep	1105	1230	11 +	98	148	$t(10) = -1.72$ $p > .05$ , N/S
Retired	1.5	3.3	120 +	1.9	2.7	$t(10) = -1.38$ $p > .05$ , N/S

The results of the t tests conducted on the patient categories within the OB-Gyn Clinic failed to reject any of the null hypotheses. Active Duty and Active Duty Dependents, both experienced increases in visits during the post-PRIMUS period, 43% and 11% respectively. It is pointed out, however, that the increase among Active Duty Dependents was not statistically significant. It is further pointed out that this finding is in contrast to the findings in the previously mentioned clinics where Active Duty Dependents experienced statistically significant decreases in clinic visits during the post-PRIMUS period. Retired dependents was the only patient category that resulted in decreased clinic visits post-PRIMUS, although not statistically significant. Additionally, it is noted that the standard deviation increased dramatically among Active Duty Dependents during the post-PRIMUS period while decreasing among Active Duty and Retired Dependents. As one might expect, Active Duty Dependents accounted for the majority of the clinic visits during the period under study (see Appendix F). It is apparent, based upon the above analysis, that the PRIMUS Clinic had no impact on workload in the OB-Gyn Clinic. Because of the low number of visits by Retirees within the OB-Gyn Clinic, no inferences or conclusions will be made with regard to Retirees.

The analysis of visits by patient category within the Outpatient Clinic are outlined in Table 7.

Table 7

<u>Results of t Test conducted on Patient Categories in OPC</u>						
	Pre Mean	Post Mean	Percent Change	Pre SD	Post SD	Result of t test
Act Dut	415	248	40 -	30	36	$t(10) = 9.24$ $p < .005$
Act Dep	730	486	33 -	51	87	$t(10) = 5.93$ $p < .005$
Ret Dep	1100	744	32 -	117	68	$t(10) = 6.48$ $p < .005$
Retirees	710	501	29 -	99	19	$t(10) = 5.08$ $p < .005$

The results of the t tests conducted on the patient categories within the Outpatient Clinic (Table 7), indicate that there were significant decreases in visits among each of the patient categories. It is noted that as a result of testing hypothesis number two (Table 3) that the Outpatient Clinic experienced an overall decrease of 33% in total clinic visits during the post-PRIMUS period which is consistent with the decrease experienced by Active Duty Dependents, Retired Dependents, and Retirees which saw decreases of 33%, 32%, and 29% respectively. Active Duty experienced the greatest decrease (40%) in clinic visits during the post-PRIMUS period. The decreases are represented graphically at appendix D. It is further pointed out that the decreases experienced among each patient category were statistically significant at the .005 alpha level. The fact that the decrease in visits among the patient categories were similar in terms of percentages is noteworthy in that the previous analyses resulted in a greater disparity in decreases between patient categories during the post-PRIMUS period. It is further noted that the decrease in standard deviation experienced by Retired

Dependents and Retirees within the Outpatient Clinic during the post-PRIMUS period, suggest that the visits were significantly less but more consistent. Another point worthy of mention is the fact that although Active Duty experienced the greatest decrease both statistically and in terms of percentage, that this is a low density patient category when compared to the other three patient categories within the Outpatient Clinic. It is therefore suggested that the decrease experienced by each of the other three patient categories had a greater impact overall on the Outpatient Clinic during the post-PRIMUS period. This is especially true since Retired Dependents accounted for the majority of the visits in the Outpatient Clinic both during the pre- and post-PRIMUS period. The results of the t tests conducted on the patient categories within the Outpatient Clinic suggest that those individuals who would have normally sought care at the Outpatient Clinic most likely sought care at PRIMUS instead during the post-PRIMUS period.

The next clinic to be evaluated was the Family Practice Clinic. The results of the t tests performed on the patient categories are indicated in table 8.

Table 8

<u>Results of t tests Conducted on Patient Categories in FP</u>						
	Pre Mean	Post Mean	Percent Change	Pre SD	Post SD	Result of t Test
Act Dut	415	151	64 -	56	29	$t(10) = 10.2$ $p < .005$
Act Dep	2387	1389	42 -	187	215	$t(10) = 8.6$ $p < .005$
Ret Dep	1769	1875	6 +	179	196	$t(10) < 1$ N/S
Retired	958	851	11 -	67	76	$t(10) = 2.59$ $p < .05$

The null hypotheses were rejected for each patient category within the Family Practice Clinic with the exception of Retired Dependents. Active Duty, Active Duty Dependents, and Retirees, all experienced decreases in clinic visits post-PRIMUS, 64%, 42%, and 11% respectively. Additionally, it is noted that each decrease was statistically significant with Retirees experiencing the least statistically significant decrease ( $t=2.59$ ,  $p < .05$ ). It is pointed out also that Retired Dependents experienced a 6% increase in clinic visits during the post-PRIMUS period which was found not to be statistically significant. It is further noted that none of the decreases experienced by the patient categories post-PRIMUS, were similar to the 23% experienced by the Family Practice Clinic overall (Table 3) during the post-PRIMUS period (see Appendix E). The fact that Active Duty accounted for less than one fourth of the total clinic visits during the pre- and post-PRIMUS period must certainly be taken into consideration when addressing the magnitude of the decrease in Active Duty clinic visits during the post-PRIMUS period within the Family Practice Clinic. With regard to the standard deviation among the patient categories within the Family Practice Clinic, it is pointed out that this statistic varied as well. Active Duty Dependents and Retirees experienced an increase in standard deviation while Active Duty experienced a decrease in standard deviation during the post-PRIMUS period. This finding suggests that among Active Duty Dependents and

Retirees, that while the mean number of clinic visits decreased during the post-PRIMUS period, there was less consistency from month to month among these patient categories while the opposite is true for Active Duty. The above analysis supports that the PRIMUS Clinic did result in reduced clinic visits among Active Duty, Active Duty Dependents, and Retirees. Retired Dependents apparently continued to seek care at the Family Practice Clinic rather than at PRIMUS.

Evaluation of Hypothesis Number Four

The final clinic evaluated was the Pediatric Clinic. The only patient categories that are of concern within the Pediatric Clinic are Dependents of Retirees and Active Duty Dependents. The result of the test of hypothesis four are depicted in Table 9.

Table 9

<u>Results of t Tests Conducted on Patient Categories in Peds</u>						
	Pre Mean	Post Mean	Percent Change	Pre SD	Post SD	Result of t test
Act Dep	2872	2490	13 -	348	239	$t(10) = 2.21$ $p < .05$
Ret Dep	133	72	46 -	38	19	$t(10) = 3.6$ $p < .005$

The results of the t tests indicate that both patient categories had significant decreases post-PRIMUS. Retired Dependents experienced a 46% decrease in clinic visits during the post-PRIMUS period which was statistically significant at the .005 alpha level. Active Duty Dependents experienced a 13% decrease in clinic visits during the post-PRIMUS period which was statistically significant at

the .05 alpha level. It can clearly be seen from the means that Active Duty Dependents accounted for the majority of the clinic visits within the Pediatric Clinic during the entire period under study (see Appendix G). Therefore, the 46% decrease in visits experienced by Retired Dependents is somewhat tempered by the low number of clinic visits that this patient category accounted for within the Pediatric Clinic. Furthermore, it is pointed out that the 13% decrease in clinic visits experienced by Active Duty Dependents during the post-PRIMUS period is consistent with the Pediatrics Clinic's overall decrease in visits of 15% during the post-PRIMUS period (see Table 3). It is noted that the standard deviations decreased during the post-PRIMUS period for both patient categories during the post-PRIMUS period suggesting that while the number of monthly visits were less they were more consistent during the post-PRIMUS period. Based on the previous analysis, it is suggested that the reduced workload during the post-PRIMUS period is most likely due to these patients seeking care at the PRIMUS Clinic.

#### Analysis of Staffing Authorizations

As previously indicated, MACH is resourced and staffed based on the amount of workload that is generated within the hospital. In the case of the clinics under study, staffing is determined for the most part by the number of clinic visits generated on a monthly basis. As such, each clinic within MACH is required to undergo a periodic manpower

survey in order that staffing authorizations might be determined. The average number of monthly clinic visits for the current staffing authorizations was obtained from the latest manpower survey documents (July 1984) for each clinic under study. Table 10 outlines the comparisons of the survey workload with the post-PRIMUS workload. It is noted however, that the survey workload figures are based upon 12 months of workload data while the post-PRIMUS figures are based upon only six months of workload data. Although this is the case, it is supported that six months of data can have significant implications for the future if properly evaluated and employed. The comparisons of workload data are outlined in Table 10, page 44.

As outlined in Table 10, the OB-GYN, the Pediatric and Outpatient Clinics and the Emergency Room's decrease in clinic visits post-PRIMUS also resulted in decreases in workload since the clinics' last manpower survey. It is noted, however, that although the Family Practice Clinic experienced a statistically significant decrease in clinic visits post-PRIMUS, the resultant decrease is still greater than the number of visits that current authorizations were based upon. The decreases in Pediatrics, OB-GYN, the Emergency Room and the outpatient Clinic will undoubtedly result in losses of current staffing authorizations if current trends in workload continue. This finding suggests that the MACH leadership should conduct a more definitive

assessment of current staffing authorizations within these clinics to the extent that clinic visits impact directly on staffing.

Table 10

Comparison of Manpower Survey Workload Figures

Clinic	Post-PRIMUS Mean Visits	Survey Mean Visits	Difference	% Change	
OB-GYN	1718.5	1831.2	-1127	6%	-
Pediatrics	2561	3917.9	-1356.9	35%	-
ER	3551.3	4237	-685.7	16.2%	-
OPC	1981.3	2775	-794	28.6%	-
FP	4266.3	4043	+223	5.5%	+

The Pediatric Clinic, the Emergency Room, and the Outpatient Clinic all experienced in excess of a 15% decrease when compared to the mean number of monthly visits for which the current staffing authorizations are based. The 6% decrease in OB-Gyn and the 5.5% increase in Family Practice are considered minimal. However, the decreases experienced in the three remaining clinics are considered significant and will be discussed later in the recommendations. As indicated in Table 3, the Pediatrics and Outpatient Clinic and the Emergency Room experienced 33%, 13%, and 15% decreases respectively in mean monthly visits post-PRIMUS of which were all statistically significant. Based on these findings, reassessment of current staffing authorizations is warranted from a workload perspective.

## CHAPTER III

## CONCLUSION AND RECOMMENDATIONS

Conclusion

The purpose of this study was to determine the impact of the PRIMUS Clinic on workload within the OB-Gyn, Family Practice, Outpatient and Pediatric Clinics, and the Emergency Room at MACH. The results of the data analysis support that there has been a significant decrease in total clinic visits at MACH after the opening of the PRIMUS Clinic even though there was no apparent effect within the OB-GYN Clinic. As such, it is suggested that the PRIMUS Clinic did not have an impact on the OB-Gyn Clinic while the other four clinics all experienced significant decreases in workload post-PRIMUS. The analysis of total visits by patient category suggest that active duty dependents experienced the most significant decrease in post-PRIMUS visits (Table 2). It is therefore suggested that these decreases as well as the decreases experienced by the other patient categories were largely due to the PRIMUS Clinic being available as an option for care to beneficiaries.

With regard to clinic visits among specific patient categories within the individual clinics under study, there were several unexpected findings. First, there was an

increase in active duty visits post-PRIMUS within the ER. This finding is most likely explained by the fact that Fort Benning is a basic training installation and that when basic trainees suffer injuries they are transported directly to the Emergency Room for care. Second, there was an increase in active duty visits post-PRIMUS within the OB-GYN Clinic. This finding is most likely explained by the fact that the PRIMUS Clinic does not offer OB services and there is still a demand for OB care that has not been met. However, the PRIMUS Clinic does provide well-women services (i.e., pap smears). Third, there was an increase in retired dependent clinic visits within the Family Practice Clinic post-PRIMUS. Although the increase is not significant, it is suggested that the retired dependents may be gaining access to care that was previously provided to Active Duty and Active Duty Dependents.

It is pointed out, however, that the Outpatient Clinic was the only clinic where there was a correlation between total clinic visits and provider manhours (Appendix B). Since each of the clinics use the same system of capturing manhours available and there was no correlation between manhours and total visits within the other clinics, the correlation within the Outpatient Clinic is considered to be serendipitous, although the clinic experienced a significant decrease in workload post-PRIMUS. It is therefore suggested that the method currently in place for capturing provider manhours within MACH is not indicative of the clinic's total workload. For example, the OB-GYN Clinic

experienced a decrease in total manhours, although not significant, while experiencing a significant increase ( $p < .05$ ) in total clinic visits post-PRIMUS (Table 4). In another instance, the ER experienced a significant decrease in post-PRIMUS clinic visits while actually experiencing an insignificant increase in the number of manhours available post-PRIMUS (Table 7). If this finding were to be analyzed from a superficial perspective, it could be easily suggested that the ER has excess physician capacity as a result of the decreased workload and the increase in provider manhours post-PRIMUS. However, the aforementioned could not be offered as a definitive explanation because the acuity of patients presenting for treatment in the ER was not evaluated, which undoubtedly contributes to the length of the patient-physician encounter. For the purposes of this study, it was concluded that manhours are not related to total clinic visits.

In light of the fact that several of the null hypotheses were not rejected and that the magnitude of the decreases in visits varies among both the clinics and the patient categories under study, it is still suggested that the PRIMUS Clinic is related to the reductions in clinic visits experienced within all clinics, with the exception of the OB-GYN Clinic. Additionally, the comparison of the post-PRIMUS workload (Table 10) with the workload for which current staffing authorizations are based suggests that the post-PRIMUS workload in each clinic, with the exception of Family Practice, warrant a reassessment of current

authorizations. Likewise, the decreases experienced by the Pediatric and Outpatient Clinics and the Emergency Room suggests a need for reassessment of staffing within these clinics. The loss of authorizations will undoubtedly have an adverse impact on the morale of the staff at MACH.

The results of this study suggest that PRIMUS has increased access to primary care for the beneficiary population while simultaneously impacting on workload at MACH. This finding is consistent with one of several possible implications of PRIMUS made by Hudak during the first years of implementation. Specifically, Hudak suggested that hospitals associated with PRIMUS Clinics might lose workload to the center and find itself in the unfamiliar, resource-draining position of having to compete to attract patients. Additionally, Hudak asserted that military treatment facilities (MTF) are not staffed, trained, or oriented toward competition (286).

PRIMUS has undoubtedly been a success in the local Columbus area. However, it is concluded that if the post-PRIMUS workload trend continues, and one must assume that it will, MACH will be faced with competing for patients that were once taken for granted.

#### Recommendations

Based on the results of the previous data analysis, the following recommendations are presented for consideration by the MACH leadership:

1. Develop strategies to regain a portion of the workload lost to PRIMUS. In doing so, it is suggested that these strategies address methods in which MACH might become more consumer oriented from an ambulatory care perspective. Hellstern points out that ambulatory care centers have been successful because they have been able to accurately perceive the medical consumer's demands and meet them in the most efficient, cost effective, and aesthetically pleasing manner possible (104).
2. Emphasis on the quality of care delivered in the clinics under study must be continued. Patients must not be given the impression that the quality of care at MACH is inferior to that at the PRIMUS Clinic.
3. That increased emphasis be placed on clinic-patient relationships. Coile suggests that the patient is a partner, client, and customer. Coile also points out that patients are excellent judges of service, and the success of the provider of ambulatory care may rise or fall on the service dimension alone (70). A successful encounter from the patient's perspective will most likely result in the patient returning to MACH for care.
4. Educate the clinical and ancillary staff on the purpose of PRIMUS and on the implications that decreased workload will have on the hospital.

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**APPENDIX A**  
**DEFINITIONS**

1. Active Duty Service Member--An individual presenting for treatment who is currently serving full time in one of the branches of the armed forces.
2. Active Duty Dependent--an individual family member of an active duty service member who meets eligibility requirements to receive medical care in a military medical treatment facility.
3. Retiree--an individual who has normally served in the active military service for a period of 20 years and has retired or was retired from the military for medical reasons.
4. Retired Dependent--an individual family member of a retiree eligible for military benefits.
5. PHP Corporation--the contractor awarded the contract for the operation of the PRIMUS Clinic in Columbus, Georgia.
6. PRIMUS--(Primary Medical Care for the Uniformed Services) neighborhood primary satellite clinics which are an extension of and a complement to the military direct health care system.
7. Workload--for the purposes of this study used synonymously with total clinic visits.

**APPENDIX B**  
**CORRELATION MATRICES**

## ----- CORRELATION MATRIX -----

HEADER DATA FOR: B:FAMRACT      LABEL: Family Practice Data  
NUMBER OF CASES: 12      NUMBER OF VARIABLES: 7

-----  
CORRELATION OF SELECT VARIABLES IN FAMILY PRACTICE CLINIC

	Period	Man Hrs	Total
Period	1.00000		
Man Hrs	-.59243	1.00000	
Total	-.90459	.32171	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .49932  
CRITICAL VALUE (2-tail, .05) = +/- .57400

N = 12

## ----- CORRELATION MATRIX -----

HEADER DATA FOR: B:ER      LABEL: Emergency Room Data  
NUMBER OF CASES: 12      NUMBER OF VARIABLES: 7

-----  
CORRELATION OF SELECT VARIABLES IN EMERGENCY ROOM

	Period	Man Hrs	Total
Period	1.00000		
Man Hrs	.26734	1.00000	
Total	-.68602	.01108	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .49932  
CRITICAL VALUE (2-tail, .05) = +/- .57400

N = 12

## ----- CORRELATION MATRIX -----

HEADER DATA FOR: B:OUTPAT    LABEL: Out-Patient Clinic Data  
NUMBER OF CASES: 12    NUMBER OF VARIABLES: 7

-----  
CORRELATION OF SELECT VARIABLES IN OUTPATIENT CLINIC

	Period	Man Hrs	Total
Period	1.00000		
Man Hrs	-.43456	1.00000	
Total	-.92061	.57820	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .49932  
CRITICAL VALUE (2-tail, .05) = +/- .57400

N = 12

## ----- CORRELATION MATRIX -----

HEADER DATA FOR: B:OB-GYN      LABEL: OB-GYN Clinic  
NUMBER OF CASES: 12      NUMBER OF VARIABLES: 7

-----  
CORRELATION OF SELECT VARIABLES IN OB-GYN CLINIC

	Period	Man Hrs	Total
Period	1.00000		
Man Hrs	-.43348	1.00000	
Total	.49491	-.20333	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .49932  
CRITICAL VALUE (2-tail, .05) = +/- .57400

N = 12

## ----- CORRELATION MATRIX -----

HEADER DATA FOR: B:PEDCLIN      LABEL: Pediatric Clinic Data  
NUMBER OF CASES: 12      NUMBER OF VARIABLES: 7

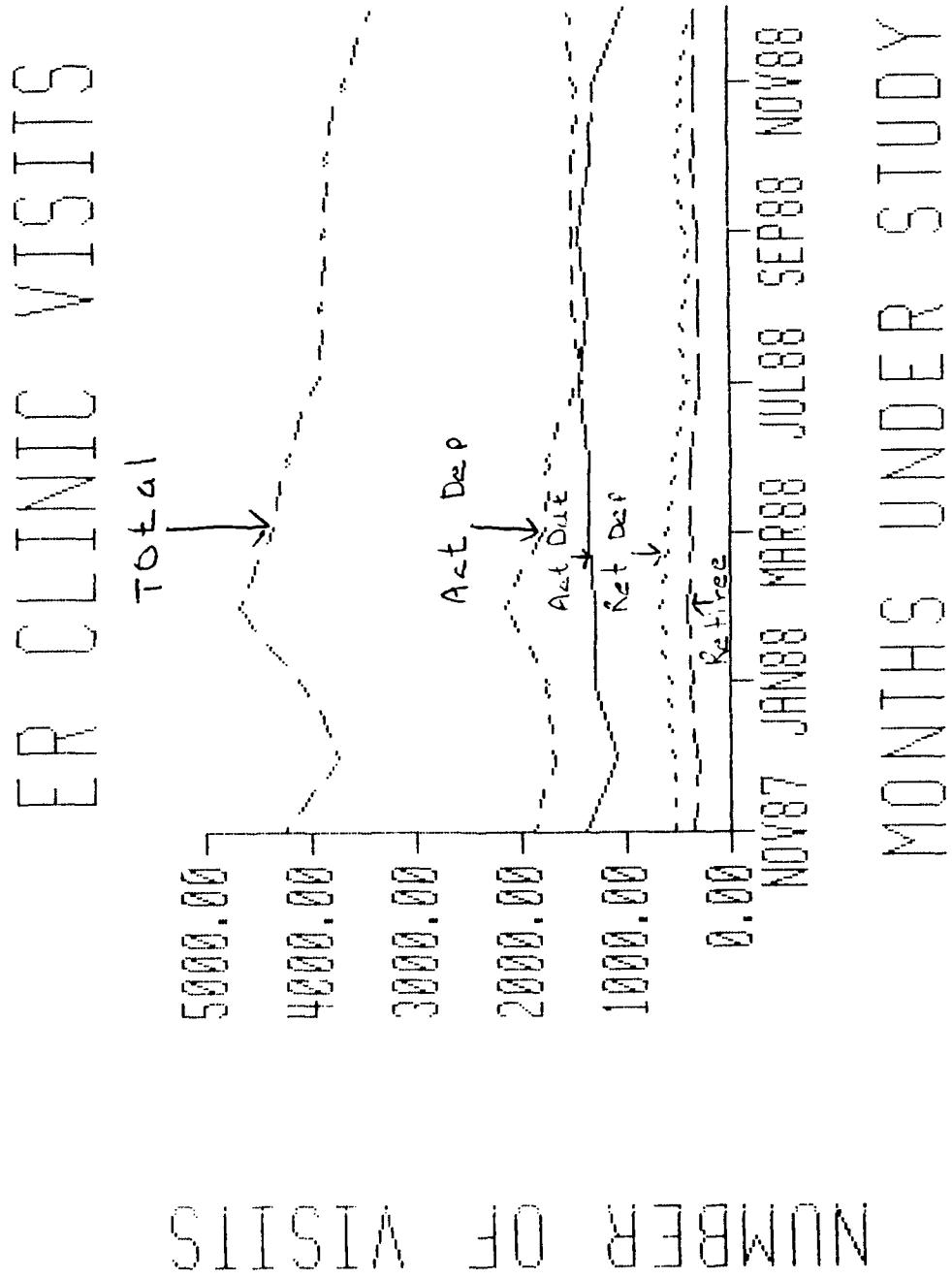
-----  
CORRELATION OF SELECT VARIABLES IN PEDIATRIC CLINIC

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Man Hrs	-.60882	1.00000	
Total	-.63950	.43544	1.00000

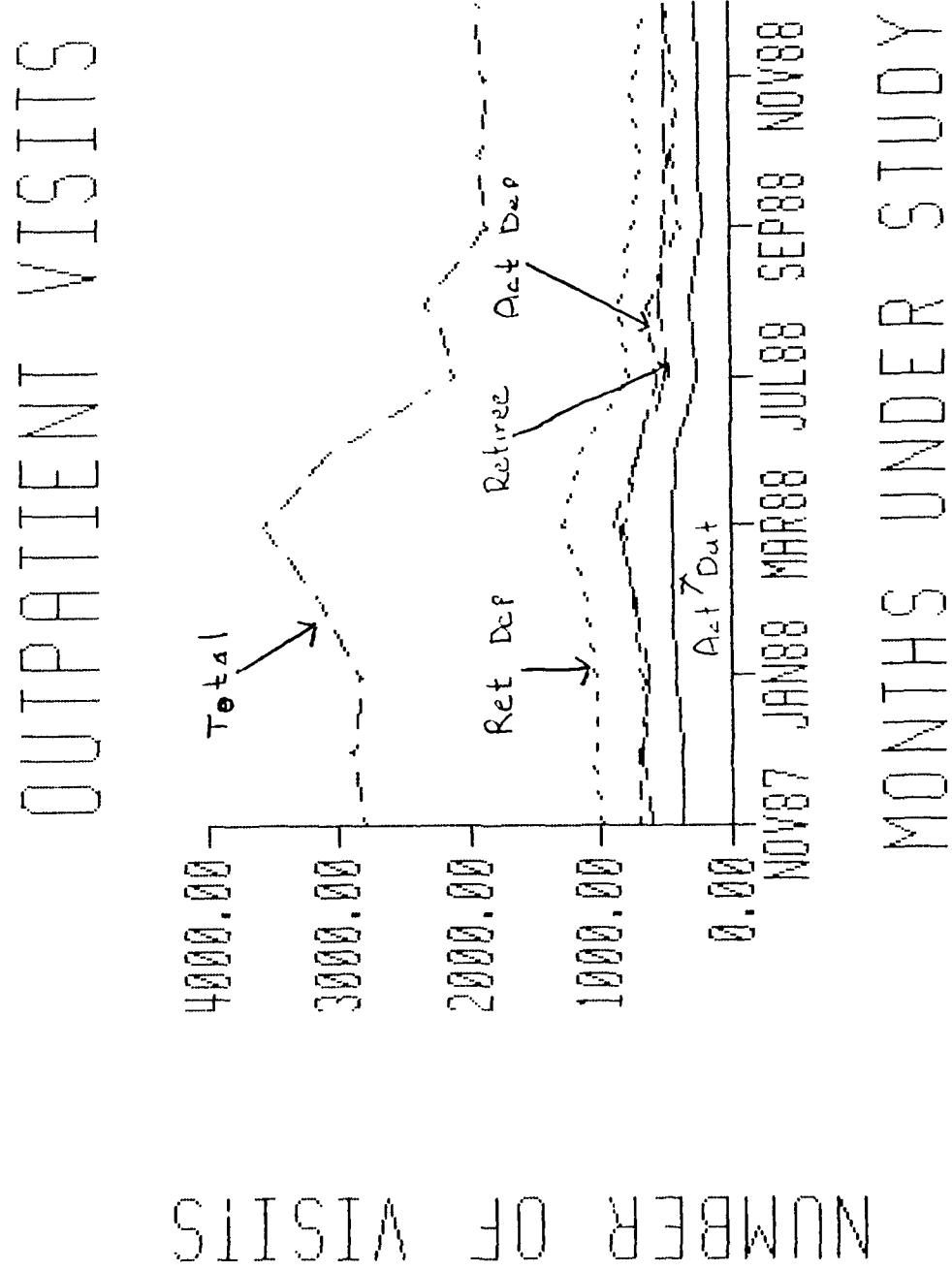
CRITICAL VALUE (1-TAIL, .05) = + Or - .49932  
CRITICAL VALUE (2-tail, .05) = +/- .57400

N = 12

**APPENDIX C**  
**GRAPHICAL REPRESENTATION OF**  
**EMERGENCY ROOM**

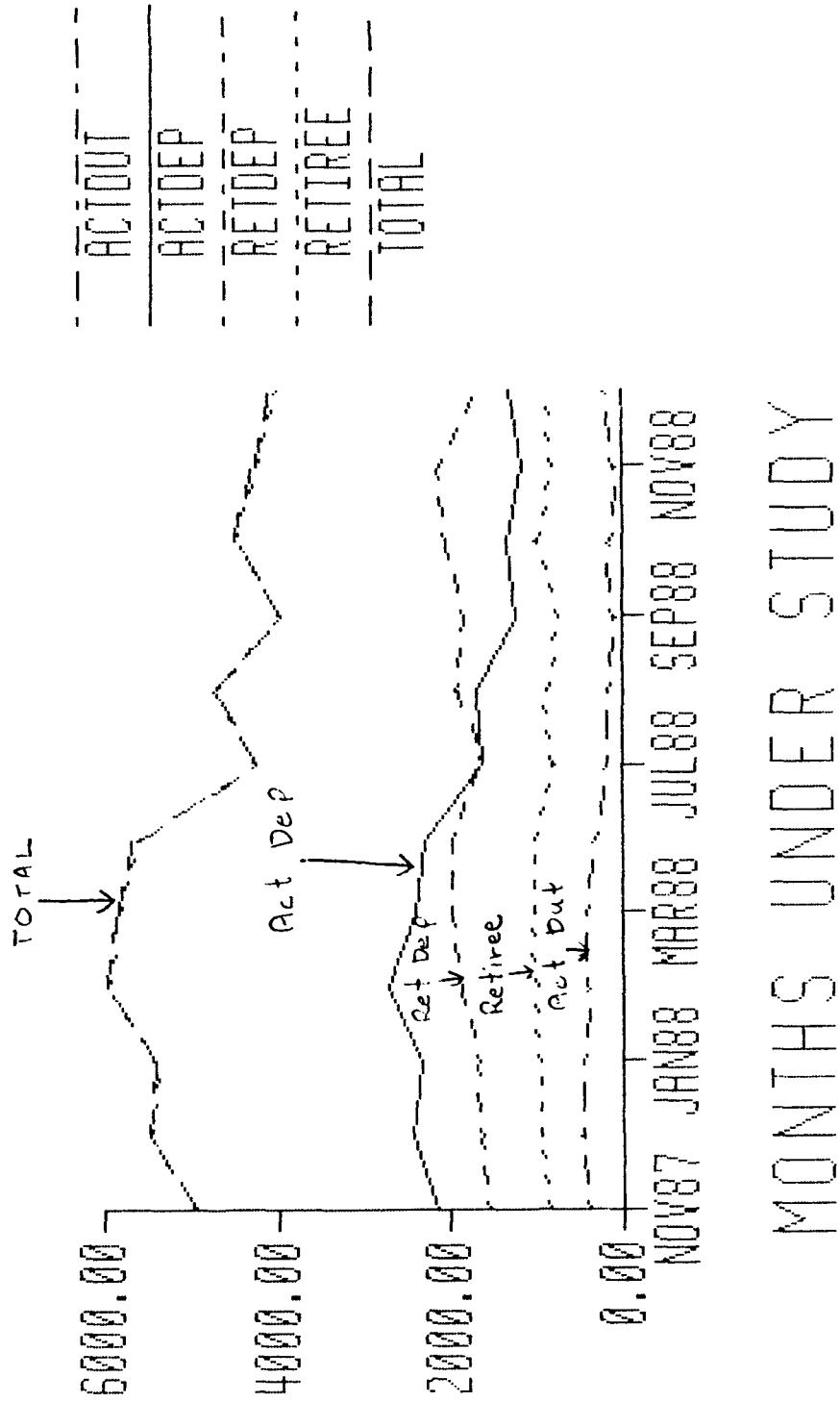


**APPENDIX D**  
**GRAPHICAL REPRESENTATION OF**  
**OUTPATIENT CLINIC**



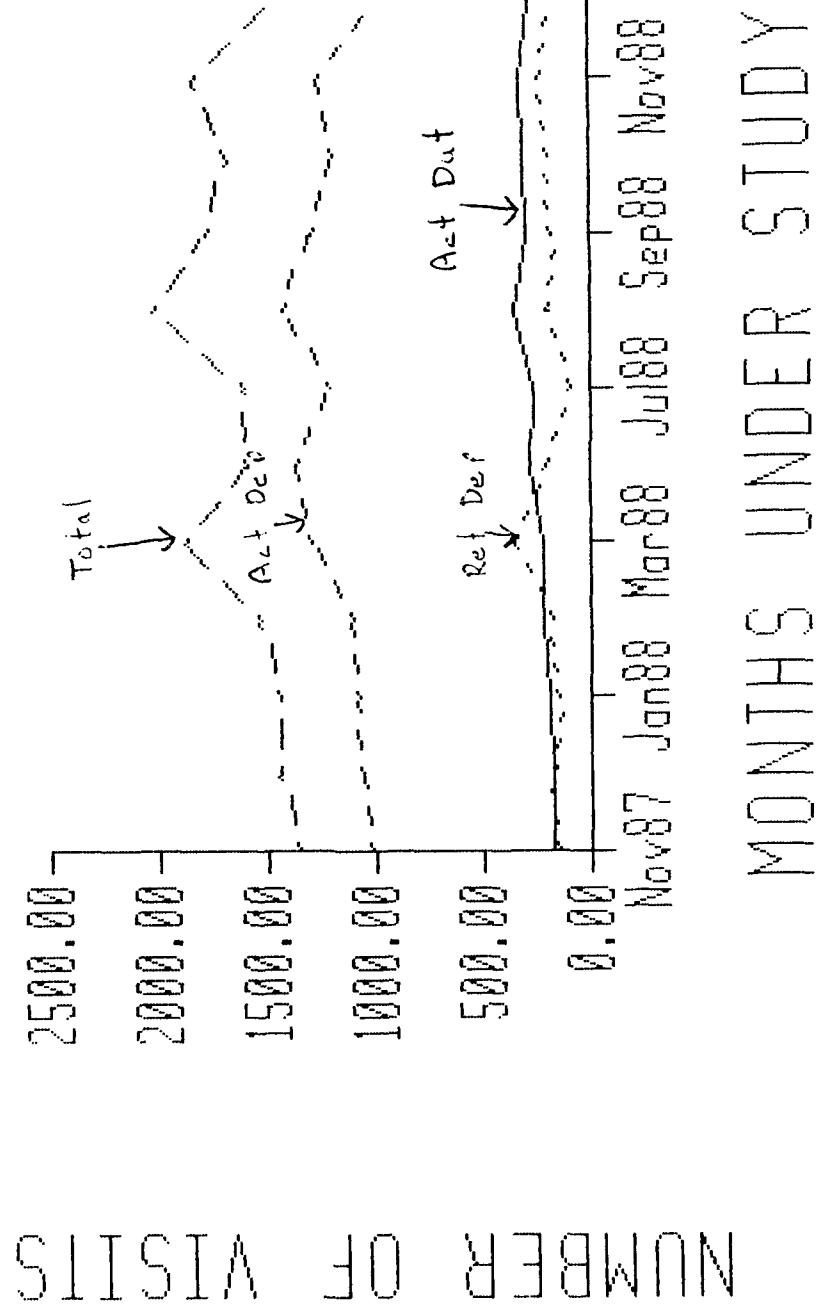
**APPENDIX E**  
**GRAPHICAL REPRESENTATION OF**  
**FAMILY PRACTICE CLINIC**

## FAMPRACT VISITS



NUMBER OF VISITS

**APPENDIX F**  
**GRAPHICAL REPRESENTATION OF**  
**OB-GYN CLINIC**

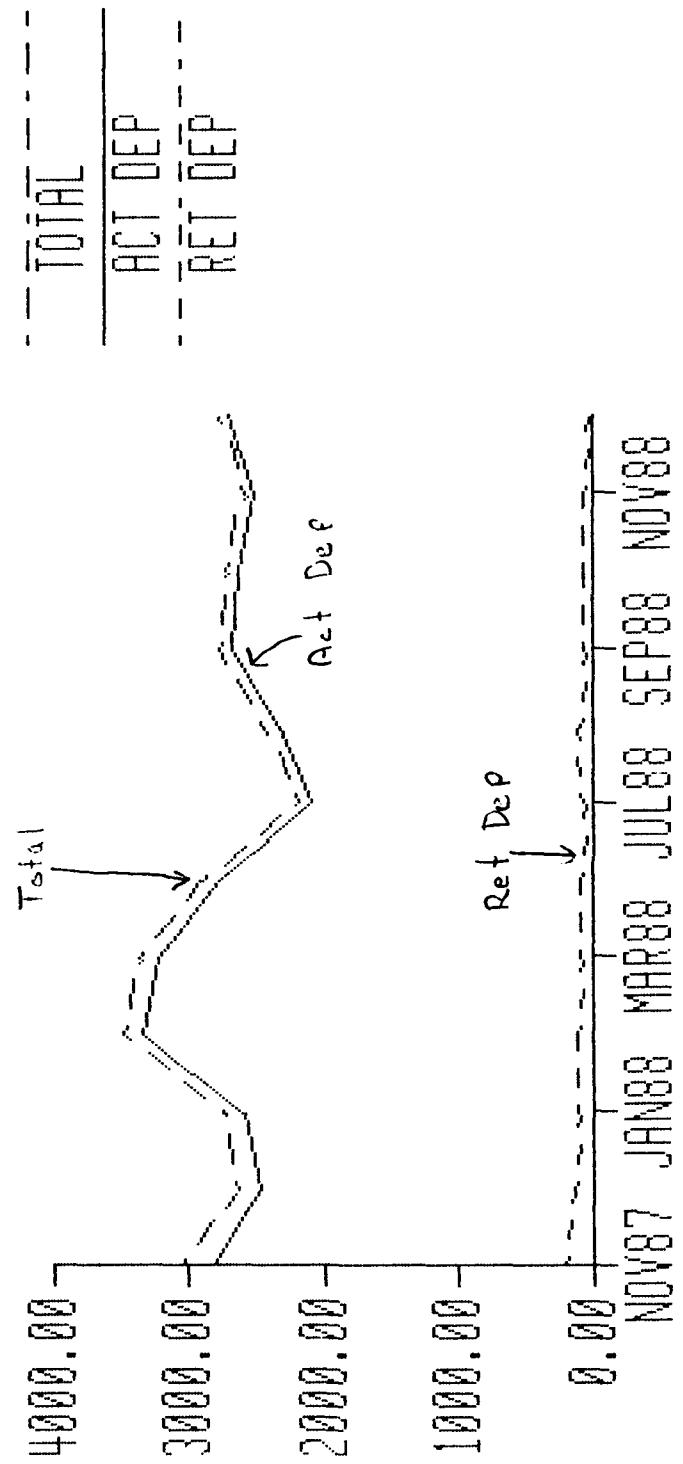


08-CVN-VISITS

**APPENDIX G**  
**GRAPHICAL REPRESENTATION OF**  
**PEDIATRIC CLINIC**

## MONTHS UNDER STUDY

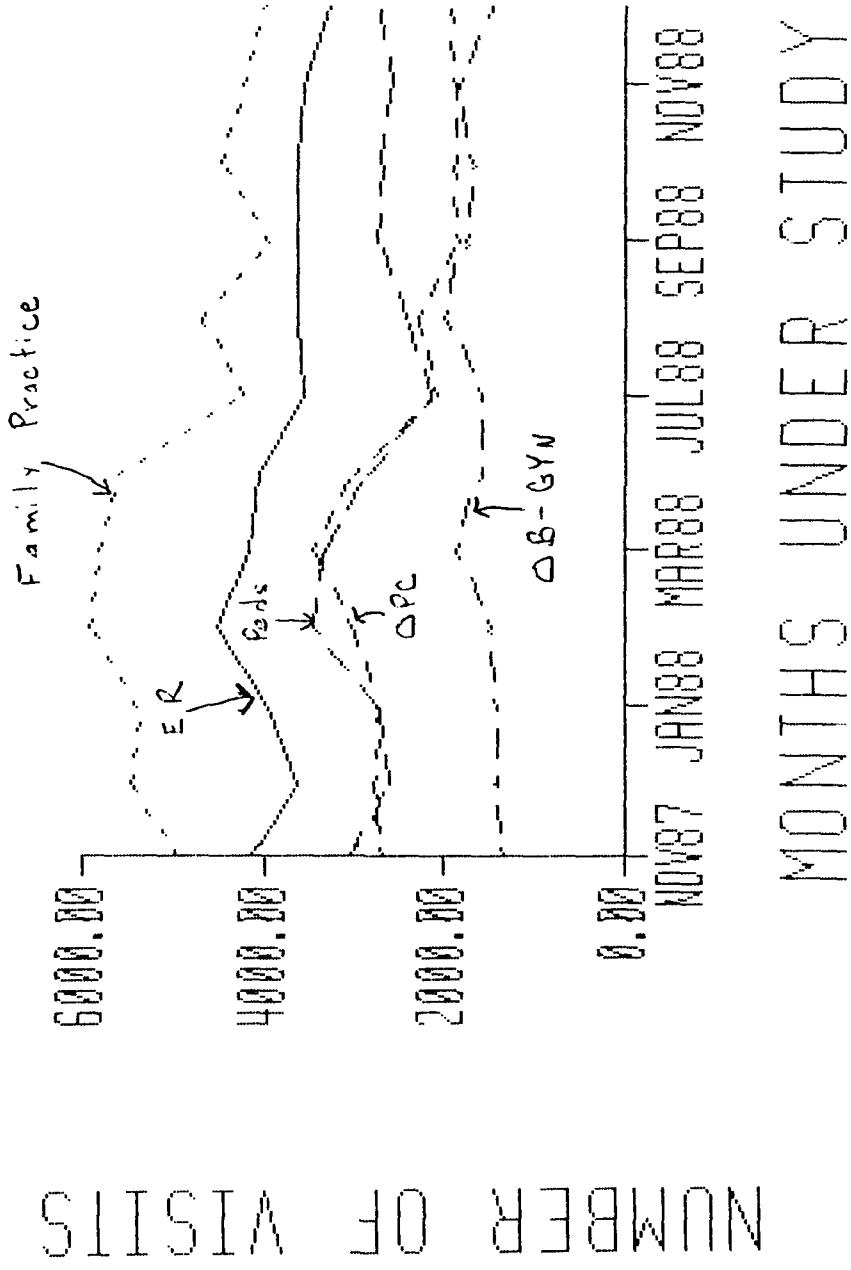
### NUMBER OF VISITS



## PEDIATRIC VISITS

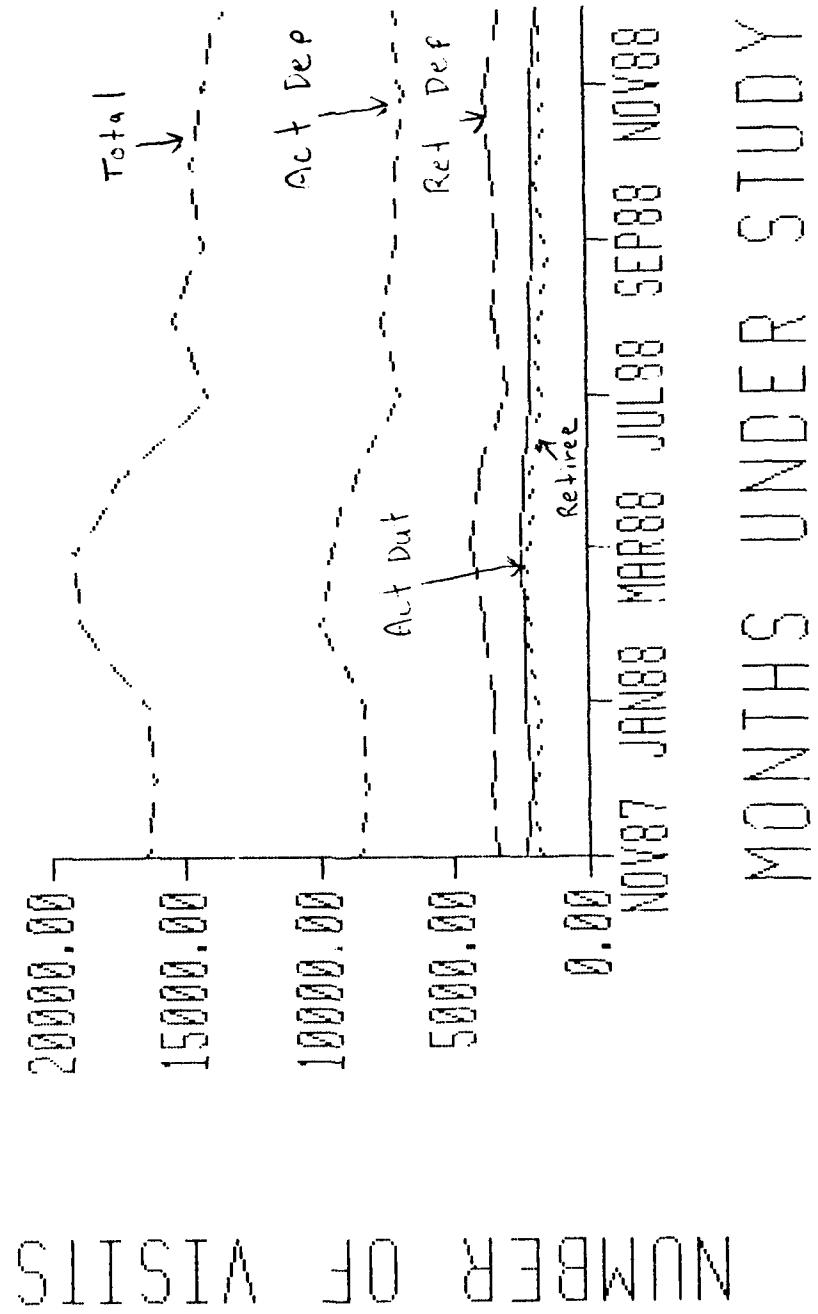
**APPENDIX H**  
**GRAPHICAL REPRESENTATION OF**  
**CLINIC COMPARISONS**

## SEPARATE CLINIC TOTALS



CLINIC TOTALS

APPENDIX I  
GRAPHICAL REPRESENTATION OF  
PATIENT CATEGORY VISITS



TOTALS BY PNT CATEGORY

NUMBER OF VISITS